

**WHAT IS CLAIMED IS:**

1. An image sensor comprising:
  - (a) a two-dimensional array of photo sensitive pixels for collecting photo generated electron or hole charge packets;
  - (b) a Bayer color filter arranged over the photo sensitive pixels in which the first color is over two pixels and the second and third are over one pixel each in a two by two sub-array of the Bayer color filter;
  - (c) a parallel charge coupled device for transferring charge packets in parallel towards a serial charge coupled device that receives charge packets from the parallel column charge-coupled devices; and
  - (d) a row of pixels between the photo sensitive pixels and the serial charge-coupled device for delaying charge transfer of selected rows to offset one column of the Bayer filter pattern such that pixels of the first color become aligned in one row and pixels of the second and third colors become aligned in the following row.
2. The image sensor as defined in claim 1 further comprising a second serial charge-coupled devices, wherein one serial CCD receives a row of pixels of the first color and then transfers the row of pixels of the first color to a second adjacent serial CCD, and the first serial CCD then receives another row of pixels of the second and third color so that the first and second serial CCD's then transfer in a serial manner.
3. The image sensor as defined in claim 1 further comprising a second serial charge-coupled device, wherein one serial CCD receives a row of pixels of the second and third color and then transfers the row of pixels of the second and third color to a second adjacent serial CCD, and the first serial CCD then receives another row of pixels of the first color so that the first and second serial CCD's then transfer in a serial manner.
4. The image sensor as in claim 1, wherein the row of pixels between the photo sensitive pixels and the serial charge-coupled device include a

sub-array of pixels arranged in two columns such that the first column contains one pixel and the second column contains two pixels.

5. The image sensor as in claim 1, wherein the row of pixels between the photo sensitive pixels and the serial charge-coupled device include a sub-array of pixels arranged in two columns of two pixels each such that the first column transfers charge packets the substantially the same as the two dimensional array and the second column transfers charge packets independent of the two dimensional array.

6. The image sensor as in claim 2, wherein the row of pixels between the photo sensitive pixels and the serial charge-coupled device include a sub-array of pixels arranged in two columns such that the first column contains one pixel and the second column contains two pixels.

7. The image sensor as in claim 3, wherein the row of pixels between the photo sensitive pixels and the serial charge-coupled device include a sub-array of pixels arranged in two columns such that the first column contains one pixel and the second column contains two pixels.

8. The image sensor as in claim 2, wherein the row of pixels between the photo sensitive pixels and the serial charge-coupled device include a sub-array of pixels arranged in two columns of two pixels each such that the first column transfers charge packets the substantially the same as the two dimensional array and the second column transfers charge packets independent of the two dimensional array.

9. The image sensor as in claim 3, wherein the row of pixels between the photo sensitive pixels and the serial charge-coupled device include a sub-array of pixels arranged in two columns of two pixels each such that the first column transfers charge packets the substantially the same as the two dimensional

array and the second column transfers charge packets independent of the two dimensional array.

10. A digital camera comprising:

(a) An image sensor comprising:

(a1) a two-dimensional array of photo sensitive pixels for collecting photo generated electron or hole charge packets;

(a2) a Bayer color filter arranged over the photo sensitive pixels in which the first color is over two pixels and the second and third are over one pixel each in a two by two sub-array of the Bayer color filter;

(a3) a parallel charge coupled device for transferring charge packets in parallel towards a serial charge coupled device that receives charge packets from the parallel column charge-coupled devices; and

(a4) a row of pixels between the photo sensitive pixels and the serial charge-coupled device for the purpose of delaying charge transfer of selected rows to offset one column of the Bayer filter pattern such that pixels of the first color become aligned in one row and pixels of the second and third colors become aligned in the following row.

11. The camera as defined in claim 10 further comprising a second serial charge-coupled devices, wherein one serial CCD receives a row of pixels of the first color and then transfers the row of pixels of the first color to a second adjacent serial CCD, and the first serial CCD then receives another row of pixels of the second and third color so that the first and second serial CCDs then transfer in a serial manner.

12. The camera as defined in claim 10 further comprising a second serial charge-coupled device, wherein one serial CCD receives a row of pixels of the second and third color and then transfers the row of pixels of the second and third color to a second adjacent serial CCD, and the first serial CCD then receives another row of pixels of the first color so that the first and second serial CCDs then transfer in a serial manner.

13. The camera as in claim 10, wherein the row of pixels between the photo sensitive pixels and the serial charge-coupled device include a sub-array of pixels arranged in two columns such that the first column contains one pixel and the second column contains two pixels.

14. The camera as in claim 10, wherein the row of pixels between the photo sensitive pixels and the serial charge-coupled device include a sub-array of pixels arranged in two columns of two pixels each such that the first column transfers charge packets the substantially the same as the two dimensional array and the second column transfers charge packets independent of the two dimensional array.

15. The camera as in claim 11, wherein the row of pixels between the photo sensitive pixels and the serial charge-coupled device include a sub-array of pixels arranged in two columns such that the first column contains one pixel and the second column contains two pixels.

16. The camera as in claim 12, wherein the row of pixels between the photo sensitive pixels and the serial charge-coupled device include a sub-array of pixels arranged in two columns such that the first column contains one pixel and the second column contains two pixels.

17. The camera as in claim 11, wherein the row of pixels between the photo sensitive pixels and the serial charge-coupled device include a sub-array of pixels arranged in two columns of two pixels each such that the first column transfers charge packets the substantially the same as the two dimensional array and the second column transfers charge packets independent of the two dimensional array.

18. The camera as in claim 12, wherein the row of pixels between the photo sensitive pixels and the serial charge-coupled device include a sub-array

of pixels arranged in two columns of two pixels each such that the first column transfers charge packets the substantially the same as the two dimensional array and the second column transfers charge packets independent of the two dimensional array.